MEMORANDUM

To: Parks and Recreation Board

From: Warren W. Struss, Acting Director
Parks and Recreation Department

Date: May 25, 2004

Subject: Clifton Boat Dock
Case Number SP-04-0081DS

A request has been received from Glen Clifton to construct a boat dock at 3117 1/2 Brass Buttons Trail.

The Parks and Recreation Department staff has reviewed plans for the proposed project and finds they do not meet the requirements of Article XIII, Section 25-2-1176, (Regulations for the Construction of Boat Docks) of the Land Development Code. The proposed dock exceeds 20 percent of the shoreline width. The lot on which the dock is to be constructed has a shoreline width of 60 feet, allowing for a dock width of 12 feet. The proposed dock width is 14 feet 8 inches, covering 24 percent of the shoreline.

Parks and Recreation Board approval is required for structures greater than 20 percent of the shoreline.

Warren W. Struss, Acting Director
Parks and Recreation Department

Fax 512.974.6756

May 6, 2004

Randy Scott
Parks & Recreation
City of Austin

RE: Clifton Private Boat Dock – 3117 1/2 Brass Buttons Trail, Austin, TX 78734

We request that you kindly grant us exemption from the 12 feet maximum width on the above proposed boat dock. Our drawings, which are in your possession, reflect a total width of 14ft 8 inches.

We trust our request will receive your favorable consideration.

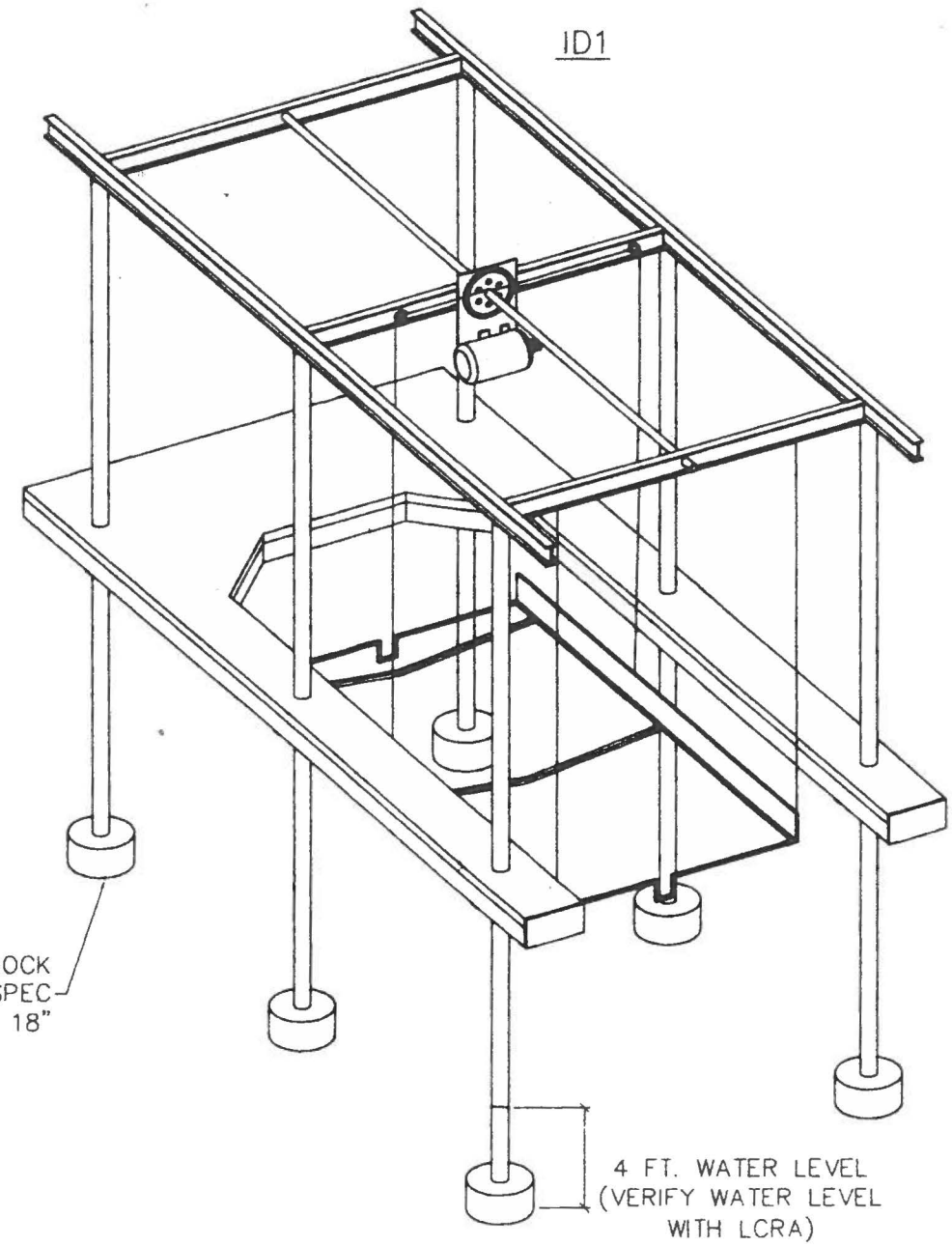
Sincerely

Glen E. Clifton
3117 Brass Buttons Tr
Austin, TX 78734

2113 Wells Branch Pkwy. Building 1, Suite 4300 Austin, TX. 78728

512.252.9615 -v
512.990.3690 -f

ID1



ONNECTIONS
WELDED
OTES FOR
SPECIFICATIONS

Garcia, Tino

From: Struss, Warren
Sent: Thursday, May 20, 2004 8:28 AM
To: Strong, Stuart
Cc: Garcia, Tino
Subject: RE: Report on Meet with Parks Bd Land & Facilities committee

Tuesday May 18, 2004
RE: ACWP
Barton Springs Lift Station Relief Tunnel Project
Report on Meet with Parks Board Land & Facilities committee

The Land & Facilities committee of the Parks Board held their monthly meeting today at Noon at the Parks Building. Those in attendance were: Jeff Boyd, comm. chair; Rosemary Castleberry, Board chair; Leonard Lyons; William Archer; and a couple of others not identified. PARD staff consisted of Warren Struss, Dir.; Stuart Strong; and Donna Bohls. ACWP was represented by Gopal Guthikonda; Jim Meara of PBS&J; Breck Plauche; Rose San Miguel and Stan Evans.

The wastewater operational concerns with the existing Barton Springs Lift Station were explained, along with some information on the collection system in the Barton Creek basin and the 1960's 42-inch Barton Creek Interceptor ("right-sized" to 33-inches).
We explained the ACWP was directed to bring a project together, incorporating the on-going PBS&J design to relieve the lift station, such that the lift station could be decommissioned in 2006. The plan to accomplish this directive was explained, consisting of the PBS&J design for a shallow tunnel in the park (Section 1), and the Espey Consultants/Montgomery Watson Harza (E/MWH) design, that has just begun, that will result in a deep tunnel down to Riverside at Dawson with a temporary lift station (Section 2).
The timeframe for the two tunnel projects will be concurrent with intent to have both bid, awarded, and under construction in early 2005 and ready for service early in 2006, followed by decommissioning of the lift station.
The impact to parkland was described, consisting of three to four temporary work areas. Three areas will have shafts for tunnel construction and one will only be for staging. The main work site for the Section 1 tunnel in Zilker will be located off Lou Neff Road (north of Barton Springs Rd), and this site will likely have an adjacent shaft for the Section 2 tunnel where the tunnel boring machine will be removed, and a permanent access manhole constructed. The downstream tunnel, called Section 2, will have a staging area at Riverside/Dawson concurrent with the work area for the shaft where the tunnel boring machine will be inserted. One work shaft would be located west of the PARD Building if needed. A staging area is to be provided adjacent to the old "pistol range" west of MoPac for the Section 1 tunnel.
Stuart Strong described the proposed mitigation for the park impacts and offered that the maintenance barn would be adequate, to be constructed at the staging area by the "piston range". This would consist of a metal structure on slab, with restrooms, and fence (and required water quality structures). They deleted the concept of a restroom facility on Toomey Rd since the open cut proposal has been replaced by the deep tunnel concept.

Should you have questions on this, please call me at 479-1636. If there are errors or omissions in this memo, please let me know.

Land & Facilities Committee
May 18, 2004 - 12 noon
PARD Conference Room

Item 1. ACWP - Review Request for Parkland Use Agreement for Barton Creek Lift Station Relief Main. Proposed project has been modified to remove the siphon beneath Barton Creek and to minimize impact to fields at Zilker. Work area at Lou Neff will still pose potential conflicts for the Yule Fest, but these can be worked around and project is scheduled to be completed before Dec. 2005. Work area at Riverside & Dawson/W. Bouldin Creek will conflict with construction of Town Lake Park (groundbreaking June 2005). Staff is working to coordinate work schedules to avoid and minimize any disruptions. Town Lake Stakeholders will be briefed at their next meeting. Concerns were expressed as to whether the modification would allowed for additional capacity, allowing further development in the Barton Creek Watershed. ACWP staff said that it would not and said that additional information on this point would be provided at the Parks Board meeting. Mitigation for project will be a facilities warehouse west of Mopac near the former pistol range.

Item 2. Review Proposal for Water Sports Facility at Walter E. Long Park. The sponsor of the proposed boat races on Town Lake came back with a concept for a modified proposal at Decker Lake. The project as currently described would involve the creation of a 200 x 2600 feet basin and a viewing ampitheater adjacent to the northwest arm of the lake. Basin would be filled with water from the lake. Most parking would be on grass. The applicant is proposing to construct facilities at their own expense in exchange for an agreement guaranteeing a certain number of weekends for use during each year for a term of years. PARD would be able to program the facility for other dates. This was a preliminary proposal, and much work remains to be done to flesh out the proposal and PARD's issues of concerns. Conditions for use and the time-sharing arrangement for the facility will be described in an agreement that will ultimately need to be approved by Council. PARD staff and Land & Facilities will continue to work with the applicant to develop and refine the proposed project. A briefing will be provided to the full board when there is sufficient specific information regarding the proposed project and draft terms for the use agreement for the project.

After the Land & Facilities Committee meeting, staff forwarded to me a message from Cid Galindo, Planning Commissioner and former president of the Downtown Neighborhood Ass'n. The American Carp Association has approached him with a concern regarding the potential for bow fishing of the carp in Town Lake. The Association recently held a successful tournament on Town Lake and is interested in expanding the recreational catch & release fishery. The LCRA has prohibited bow fishing on its lakes; the City of Austin, however, currently allows bow fishing subject to certain conditions. Land & Facilities will work with Mr. Galindo, the Association, and PARD staff to investigate this issue. If a code amendment is called for, the issue will be brought before the Parks Board sometime this summer.

Jeb

MEMORANDUM

TO: Warren Struss, Director
Parks and Recreation Department

FROM: Sondra Creighton, P.E., Director
Public Works Department

DATE: May 24, 2004

SUBJECT: Request for Use Agreement Across Parkland
Barton Springs Lift Station Relief Tunnels 1 & 2
CIP No. 4570-237-8403; eCapris 4954.004

The Public Works Department, on behalf of the Austin Water Utility (AWU), hereby requests a permanent and temporary use agreement for the construction, operation and maintenance of the proposed 33-inch wastewater line to be installed in two tunnel construction projects as part of the Barton Springs Lift Station Relief Tunnels 1 and 2. Attached are the following documents for your use and consideration to support this request:

A. General Location Map,
B. Information Packet,
C. Tree Survey (to be provided), and
D. Field Note descriptions (to be provided).

From these documents, you will note that the permanent use portion of the proposed agreement contains a total of 1 acre for permanent wastewater easement and 3.27 acres for the temporary easements.

The wastewater tunnel project includes construction of approximately 5,300 linear feet of 96-inch diameter tunnel which will have a 33-inch wastewater pipe which will convey wastewater flows from the Barton Creek basin. This will allow the deteriorated Barton Creek Lift Station to be decommissioned. The proposed alignment through Zilker Park will be from the existing Barton Creek Lift Station to a proposed work shaft/permanent manhole near the pedestrian bridge over Barton Creek. This is a distance of 1900 linear feet, and includes a portion of existing wastewater line. The alignment then proceeds east to a work shaft/permanent manhole west of the PARD building parking lot, and then to a work shaft/permanent manhole/temporary lift station located near the intersection of Dawson and Riverside. This is a distance of 3400 linear feet. The entire tunnel will be built under City Right-of-Way or Parks property. Impact to Zilker Park will be limited to the single temporary work site needed to construct the two tunnels. The upper end of the proposed tunnel in Zilker will tie to an existing portion of wastewater line. Therefore, no construction work is needed in the area of the pool or the playground. The work shaft near the PARD building will not impact the adjacent ballfields or existing parking. Vehicular traffic will

be temporarily rerouted. The area at Dawson and Riverside will contain a staging and work space.

Two alternatives are under consideration for the location of the east shaft. The first is the south side of Riverside in the undeveloped area formerly occupied by the old auditorium. The tunnel project will be completed before park development at this location is to begin. The second alternative is for the shaft to be located on the north side of Riverside in the little used area east of the railroad bridge.

The shaft adjacent to Riverside will have a permanent access manhole, and will incorporate a temporary lift station to take the flows in the proposed tunnel and deliver to a nearby major wastewater line. In the future, the City anticipates constructing another tunnel downstream of this point, that would allow all of the flows to be conveyed by gravity for treatment, and the lift station near Riverside would then be decommissioned. This future "downtown" tunnel is indicated on the attached graphics, and is slated for construction about 2010.

The project design and bid documents will consist of two designs and two bid packages. The Section 1 portion within Zilker park is being prepared by PBS&J. The Section 2 portion from Zilker to Riverside/Dawson will be prepared by Espey Consultants with Montgomery Watson Harza (EC/MWH). The proposed routing is shown on the General Location Map. The work areas in affected parkland appear to be outside the 100-year floodplain of Barton Creek and Town Lake.

Public Works, in cooperation with the AWU, PARD, WPDRD and others, have agreed that the proposed alignment is the most feasible and prudent alternative for installing these needed WW improvements. All reasonable planning efforts have been taken to minimize harm to the area. All construction and site restoration for the project will be completed in accordance with the ACWP Design Manual and *Standard Specifications and Construction Standards* of the City of Austin. All construction and site restoration for that portion, of the project within parkland, will also be completed in accordance with PARD's *Construction in Parks Specifications*. In exchange for use of the proposed staging area in the portion of Zilker Park west of Mo-Pac, AWU will assist PARD with development of a new maintenance facility at the west staging area site after the relief main project is complete.

We request that the necessary documentation be prepared for consideration of this request by the Parks and Recreation Board. We have already presented this information to the Land and Facilities Committee and they accepted the plans for restoration and mitigation. We plan to make a presentation to the Parks and Recreation Board at their July meeting to seek their concurrence with the requested land use agreement.

If you have any questions or need any additional information, please feel free to contact Mr. Stan Evans, P.E. (Public Works), 479-1636.

Sondra Creighton

Sondra Creighton, P.E., Director
Public Works Department

Attachments

CC: Gopal Guthikonda w/attachments
Stuart Strong w/attachments
Bill Moriarty, ACWP/Earthtech, w/attachments
Pete Vujasin, ACWP/Earthtech, w/attachments
Junie Plummer w/attachment
Rose San Miguel w/attachments
Stan Evans w/attachments
file

DRAFT

Information Packet
For Parkland Use Agreement

Barton Springs Lift Station Relief Tunnel – Section 2
CIP No. 4570-37-8403

to serve the
BARTON CREEK WASTEWATER COLLECTION SYSTEM

Prepared by the
Austin Clean Water Program

on behalf of the
City of Austin
Austin Water Utility
and
Department of Public Works

INTRODUCTION

The Austin Clean Water Program, on behalf of the Austin Water Utility and the Department of Public Works, is proposing to construct two tunnel sections to relieve the Barton Springs Lift Station. Tunnel Section 2 will be a 33-inch wastewater line in a 96-inch diameter tunnel, which will be approximately 3400 linear feet. Section 2 will be downstream of Tunnel Section 1, and both are part of this request. The wastewater line in the tunnel, along with the shafts and appurtenances, will serve the lower end of the Barton Creek basin wastewater collection system. The proposed tunnel will allow the Utility to decommission the Barton Springs Lift Station (remove equipment and fill in) and abandon the associated force main that crosses Barton Creek downstream of the dam. In conjunction with this project, Public Works is requesting authorization to build portions of the Wastewater projects in the parkland, including Zilker Park, an area west of the PARD building, and in the undeveloped parkland along Riverside at Dawson, east of the Union Pacific railroad bridge. Between the shaft work areas, subsurface easements for the tunnels will also be requested. This authorization will require action by the City pursuant to Chapter 26 of the Texas Parks and Wildlife Code.

The proposed wastewater work within parkland consists of the construction of the Section 2 tunnel, which will have no surface impacts other than an access manhole lid at the surface. There will need to be one temporary work area adjacent to Lou Neff road near the pedestrian bridge, which will contain a shaft. Another shaft work area will be located west of the PARD building parking lot, and another work shaft will be located either north or south of Riverside Drive, at Dawson, east of the Union Pacific railroad bridge. Between the parkland work area at the PARD building and the work area location on Riverside, the tunnel will be installed below street right-of-way. In addition to the permanent underground easements for the tunnel, temporary work space easements are requested for construction of the shafts.

PROJECT NEED AND JUSTIFICATION

The Austin Clean Water Program (ACWP) was developed to provide wasterwater system improvements needed to overcome system overflows related to deteriorated infrastructure and excessive flows resulting from rainwater infiltration. The US EPA placed an Administrative Order on the City of Austin to eliminate overflows. In 2002, flooding of Barton Creek caused the Barton Springs Lift Station to stop functioning. Investigation during the repairs determined that the lift station is deteriorated, and in danger of collapse. In order to eliminate the lift station and ensure no wastewater overflows, the AWU directed a solution be designed to convey the flows from the Barton Creek basin by gravity and allow the Barton Springs Lift Station to be decommissioned. The City Manager directed this be achieved by early 2006, requiring design in 2004 and construction during 2005.

The firm of PBS&J has been working on a tunnel design, primarily within Zilker Park, which is designated Section 1. A separate Information packet for that tunnel segment is attached. In May of 2004, the ACWP assigned the design for the portion of tunnel from Zilker Park to Riverside at Dawson to the firm of Espey Consultants/Montgomery Watson Harza. Both firms are to complete design for bid advertisements to occur in the fall of 2004, and construction to occur in 2005.

The engineer recommended a 96-inch diameter tunnel under Shoal Creek for the 33-inch wastewater pipe allowed by the Barton Creek wastewater service consensus agreement. The entire length of the tunnel will be in parkland, except where it will be in the right-of-way for Riverside Drive. Upon completion of the new line in the tunnel, only an access manhole will remain at the three proposed shaft sites. We are requesting permanent underground and surface easements for these improvements that occur within parkland, along with temporary work space easements.

ALTERNATIVES TO THE USE OF PARKLAND

The feasibility report by PBS&J evaluated alternative solutions and routes relief of the Barton Springs Lift Station. Those options are described in the attached Tunnel Section 1 Info Packet. The recent decision to build the Section 2 tunnel and temporary lift station is a result of the future prospect for the proposed downtown wastewater tunnel. The Section 2 tunnel solution will avoid the impacts of surface construction. There are no alternative tunnel alignments that are not within parkland, due to the location of the existing lines that now bring flow to the Barton Springs Lift Station.

PROJECT DESCRIPTION AND SCHEDULE

The wastewater line project will include the construction of approximately 3,400 linear feet of 33-inch diameter wastewater interceptor and related appurtenances in the general area from Barton Creek to the intersection of Riverside Drive at Dawson. The project routing, design and bid documents are being prepared by the team of Espey Consultants with Montgomery Watson Harza, as part of the Austin Clean Water Program (ACWP). The proposed routing is shown on the General Location Map. The entire length will be tunnel, such that surface disturbances will be limited to the one interim shaft work area and the work areas where shafts will be located at either end of the tunnel. The affected parkland is not within the 100-year floodplain of Barton Creek, except for the shaft location at Riverside/Dawson.

The proposed tunnel will require a work space and staging area to be located within the parkland adjacent to Riverside at Dawson. The activity at this location will include shaft excavation, removal of excavated material from the shaft, loading in materials to the tunnel, movements of haul trucks, storage of pipe, and field offices for the contractor. The temporary work space easements for all of the several scopes will total about ___acres. Bidding is scheduled in the fall/winter of 2004 with work to begin early in 2005 and work will end in Spring 2006.

SHORT TERM EFFECTS OF CONSTRUCTION

The tunnel shaft workspaces are all currently in open parkland areas with no dedicated uses. The construction will not interfere with any park functions, including nearby trails or ballfields. All work areas will be fenced and sedimentation controls installed. Construction equipment will disturb the ground cover in the work areas, which consists chiefly of Bermuda and/or St. Augustine grass. The few trees that appear to be within the temporary work areas will be protected or replaced. Areas of disturbance will be revegetated. Truck traffic in Zilker park will be limited to nighttime, except for the period when the deep retrieval shaft is being excavated. The shaft near the PARD building will be accessed on an existing gravel road with access to Toomey Rd. The main work area at Riverside/Dawson will use Riverside for access and vehicle movements. The equipment at each shaft location will likely include a crane, a blower to provide air inside the tunnel, electrical transformer bank, open storage of materials and office trailer. The tunnel is about 60 feet deep, with over 50 feet of rock and soil over the top of the tunnel. No tree roots will be impacted by the deep tunnel.

LONG TERM EFFECTS OF CONSTRUCTION

There will be no long-term effects due to the project. Construction of the proposed wastewater line in the tunnel will allow the Barton Springs Lift Station to be decommissioned, and the potential for sewage overflows associated with lift station operations will be eliminated.

A long-term impact on the park that is planned by PARD with assistance from AWU is relocation of the maintenance facility that is currently located next to the Caretakers House. In exchange for use of the proposed staging area in the portion of Zilker Park west of Mo-Pac, AWU will assist PARD will

development of a new maintenance facility at the staging area site after the relief main project is complete. Details are being worked out between PARD and AWU and are not part of relief main Section 1 design.

RESTORATION PLAN

All disturbed land will be restored and revegetated to equal to existing conditions. Any trees that need to be removed will be replaced. Areas used for the work will be left at original grade. Since all three of the work areas will be revegetated after September, a mixture of bermuda and annual rye will be used.

All site restoration will be completed in accordance with the *Standard Specifications and Construction Standards* of the City of Austin. All construction and site restoration for that portion of the project within parkland will also be completed in accordance with PARD's *Construction in Parks Specifications.*

As with all City construction projects, the Contractor will be required to provide a one-year warranty of his work including such restoration, revegetation and tree replacement.

DRAFT

INFORMATION PACKET
FOR PARKLAND USE AGREEMENT

BARTON CREEK LIFT STATION RELIEF MAIN –SECTION 1
CIP PROJECT No. 4530-237-8403

Prepared for :
Austin Water Utility
P.O. Box 1088
Austin, Texas 78767

Prepared by:
PBS&J
6504 Bridge Point Parkway, Suite 200
Austin, Texas 78730

May 2004

INTRODUCTION

The Austin Water Utility (AWU) proposes construction of a new wastewater main that will result in decommissioning of the existing Barton Creek lift station. The lift station is located beneath the parking lot at Barton Springs Pool. The entrance tube to the underground dry well that houses the pumps is in the traffic island at the east end of the parking lot near the train tracks and concession stand. The adjacent wet well is under the area that is currently barricaded to restrict parking. The lift station receives flow from the 42-inch Barton Creek Interceptor and pumps it through a 16-inch force main under Barton Creek to a 24-inch gravity main that extends down Robert E. Lee Road.

The Barton Creek lift station relief main project is proposed for construction in two phases. Section 1 is the subject of this information packet. Section 1 consists of the relief main in a tunnel from a construction shaft north of Barton Springs Road to the 42-inch Barton Creek Interceptor (see Location Map and Figure 1). Section 1 is in the design and permitting stage. Section 2 is the downstream portion of the relief main and is currently in the preliminary engineering phase.

PROJECT NEED AND JUSTIFICATION

The new wastewater main is needed in order to address a number of problems with existing wastewater facilities located in Zilker Park:

- The Barton Creek lift station wet well has experienced severe corrosion of the concrete roof and walls, threatening its structural integrity and requiring traffic barricades to avoid superimposing vehicle loads on the wet well.

- The 24-inch Robert E. Lee Road interceptor has inadequate capacity for peak flows from its service areas, which include the area served by the Barton Creek lift station. The 24-inch reinforced concrete pipe, installed in 1958, is in deteriorated condition and in need of rehabilitation to remain in service to carry flows generated in its service area south of Barton Creek. Rehabilitation with liner pipe will further reduce its capacity.

- Corrosion is evident in the Barton Creek lift station's dry well, the buried steel can that houses the pumps and motors (installed as a "temporary" lift station in 1976).

- The condition of the lift station's 16-inch ductile iron force main is questionable because of a history of trapped air in the pipe that creates conditions for corrosion and weakening of the pipe. The profile, usage, and accessibility of the force main prevent CCTV inspection to determine severity of the pipe condition.

The proposed project will intercept flows currently going to the lift station. This will permit decommissioning of the lift station and also reduce the flow in the 24-inch Robert

E. Lee Road interceptor and permit sliplining for rehabilitation. The pipe rehab is not included in the Section 1 relief main project.

ALTERNATIVES TO USE OF PARKLAND

Since the existing Barton Creek Interceptor and Lift Station are located in parkland, construction in parkland is required in order to connect the proposed wastewater main to the existing facilities.

The preliminary engineering phase of the project evaluated a number of alternatives for relief of the Barton Creek lift station and the Robert E. Lee Road interceptor. One group of alternatives was a new lift station in a different location and a new force main to bypass the 24-inch main. A new lift station at the current maintenance yard location (after relocation of the maintenance facility to a new location) was the most feasible of the pumping alternatives. However, all of the possible sites evaluated for a new lift station were located within the boundary of Zilker Park. Furthermore, lift station construction would have more impact on parkland than other alternatives, and a new lift station would not have the same degree of operational reliability and cost efficiency as gravity alternatives.

The preliminary engineering phase also evaluated a gravity relief main that included an inverted siphon creek crossing north of Barton Springs Road and connection to an existing 48-inch main (in parkland) near Zachary Scott Theater. The portion of the relief main in Zilker Park would be installed by tunneling. The inverted siphon barrels under Barton Creek would be installed by horizontal directional drilling. The portion along Toomey Road to the 48-inch connection would be installed by trenching. Essentially all of this alternative would be located in parkland. The tunneled portion of this alternative in Zilker Park is the current Section 1 project.

A recent development has been to integrate the Barton Creek lift station relief main project with the Downtown Tunnel project that is included in the Austin Clean Water Program (ACWP). The current plan is to extend the proposed Downtown Tunnel as a deep tunnel in rock to cross under Barton Creek and connect to the shallower soft-ground tunnel crossing Zilker Park that is the Section 1 addressed herein. The deep tunnel under Barton Creek avoids the need for an inverted siphon creek crossing and eliminates the maintenance requirements that are associated with inverted siphons. The deep tunnel (Section 2) portion of the project eliminates impacts that inverted siphon construction would have on the soccer field north of Barton Creek and the tee ball field south of the creek at Toomey and Sterzing.

PROJECT DESCRIPTION AND SCHEDULE

The Barton Creek Lift Station Relief Main Section 1 consists of (1) a wastewater main tunneled from a construction shaft north of Barton Springs Road to the end of the existing 42-inch Barton Creek interceptor and (2) a wastewater pipe inserted inside the 42-inch from the tunnel up to the manhole at the Barton Creek lift station. This 275-ft section of

42-inch pipe has been out of service since 1976 when the pipe was plugged at the lift station in order to divert flow into the wet well. The total relief main length for Section 1 is 2,000 ft. The carrier pipe installed in the tunnel will be fiberglass reinforced plastic mortar pipe (e.g., Hobas pipe), which is inherently corrosion and abrasion resistant in wastewater applications.

All construction activity will occur at the tunnel shaft workspace north of Barton Springs Road. All construction outside of this workspace will be underground. No surface workspace is proposed at the existing 42-inch main for a tunnel take-out shaft. There is also a proposed staging and storage area for the contractor at the old pistol range in Zilker Park on the north side of Rollingwood Drive just west of Mo-Pac Boulevard.

The proposed tunnel shaft workspace is 0.74 acres and the proposed staging area is 0.58 acres. Temporary workspace easements will be required for these two areas, and a 20-ft permanent easement is proposed for the tunnel.

A shaft approximately 25 ft in diameter and 30 ft deep will be excavated in the workspace north of Barton Springs Road. As the tunnel is excavated westward from the shaft, a primary liner for ground support will be erected inside the tunneling shield. The tunnel bore is expected to be 7 to 8 ft in diameter (contractor's option). After the tunnel is completed up to the 42-inch pipe, 36-inch sewer pipe will be transported up the tunnel from the construction shaft and inserted inside the 42-inch pipe up to the plugged manhole at the lift station. Then 33-inch sewer pipe will be installed in the tunnel. Leakage tests will be performed on the pipe joints as the pipe is installed. Finally, the carrier pipe will be fully encased in grout inside the tunnel primary liner and the 42-inch pipe.

Construction is proposed to begin in January 2005 after completion of Yulefest and the Trail of Lights. Duration of construction activity for Section 1 will be about 10 months. The proposed schedule estimates 2 weeks for site preparation, 3 weeks for shaft construction, 16 weeks for tunnel construction, 2 weeks for liner pipe installation, 4 weeks for tunnel pipe installation, 5 weeks for grouting, and 5 weeks for demobilization and restoration, plus some time for potential weather delays. A typical tunneling contractor's schedule is two 10-hour production shifts and a 4-hour maintenance shift, seven days a week.

SHORT TERM EFFECTS OF CONSTRUCTION

The tunnel shaft workspace is currently an open area in Zilker Park with no facilities or organized usage. Soccer fields are located to the north across the park road (Lou Neff Road) and a picnic area is located to the west. The staging area west of Mo-Pac Boulevard is an open area with no existing park facilities. It is located just to the west of the walled compound for the old pistol range.

At the start of construction, chain link security fencing will be erected around the tunnel workspace and the staging area, and erosion/sedimentation controls will be installed.

Stabilized construction entrance and exit from Lou Neff Road will be provided at the tunnel shaft workspace. Construction equipment will disturb the existing ground cover at the work sites, which is predominantly Bermuda and St. Augustine turfgrass. Obtaining sufficient open workspace at the shaft site will require removal of one 7-inch and two 5-inch Bur Oak trees. Tree protection fencing will be provided for a pecan and three Bur Oak trees inside the workspace. The workspace boundary toward the creek is outside the critical root zone of protected pecan trees. There are no trees located within the staging area boundary.

The project will require truck traffic on Lou Neff Road, which is one-way with the entrance near the Barton Creek bridge and the exit at Stratford Drive. During tunnel excavation, truck traffic for hauling spoil material will be limited to nighttime hours. The production rate for tunnel excavation will be low enough that continuous hauling will not be required. However, tunnel shaft excavation at the start of the project will require daytime hauling since the workspace is too small for spoil storage at the higher shaft excavation rate. Trucks will also be making deliveries of construction equipment and materials, e.g., ribs and lagging for the tunnel primary liner, pipe, grout.

A crane at the shaft workspace will be the most visible construction feature. The crane will lift spoil material from the shaft and tunnel for loading into dump trucks. The crane will also transfer materials and equipment into the shaft, e.g., ventilation duct, rails, ribs and lagging, pipe, etc. There will also be a blower at the shaft workspace for tunnel ventilation, a generator, and a trailer. The contractor's staging area at Rollingwood Drive is expected to have construction trailer(s) for the contractor and resident project representative/inspector, storage trailer(s) for protected equipment, open storage of construction materials such as liner and pipe, and parking for the construction workers.

The top of the tunnel bore will have from 12 to 20 ft of cover below ground level. There are a number of protected trees (Pecans and American Elms) in the general corridor of the tunnel, and the tunnel alignment was selected to avoid passing directly beneath trees. Forestry experts at Texas A&M University and Stephan F. Austin University were consulted about potential impact of the tunnel on overhead trees. Both professors advised that the mass of tree roots is much shallower than the tunnel depth in the upper soil layer where there are nutrients, oxygen, and moisture. The tunnel should have no impact on trees overhead.

LONG TERM EFFECTS OF CONSTRUCTION

There will be negligible adverse long-term impacts on parkland from construction of the Barton Creek Lift Station Relief Main Section 1. The tunnel shaft workspace will be restored to original condition. Eventual elimination of the Barton Creek lift station in the pool parking lot will be a major benefit, since it has had operational failures in the past and its current structural condition requires traffic barricades that are blocking off eight parking spaces at Barton Springs Pool. Note that final decommissioning of the lift station will require completion of Section 2 of the project. Since Section 2 is in the preliminary

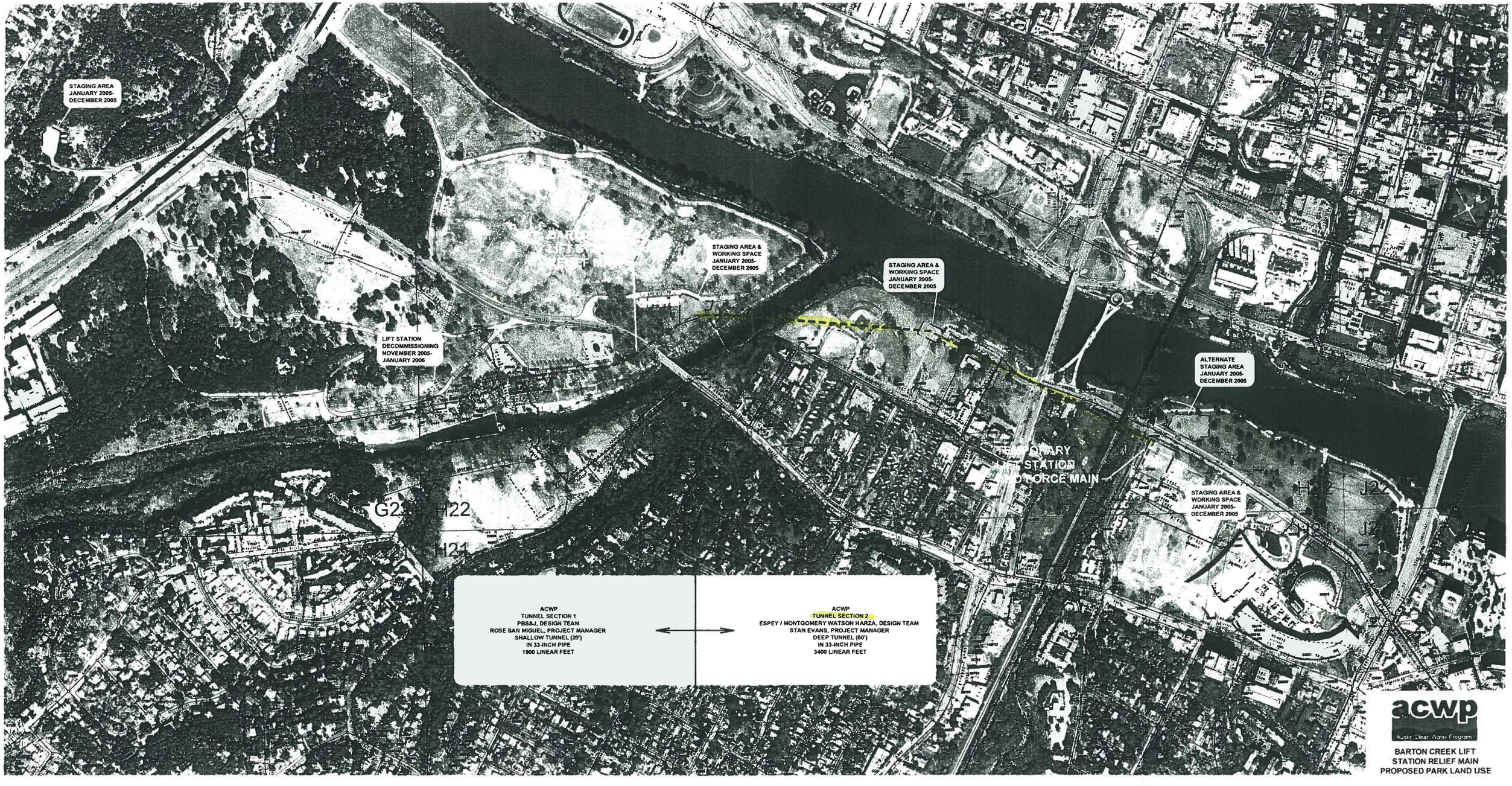
engineering phase, a separate information packet will be prepared for the Parks Board when Section 2 is in design.

A long-term impact on the park that is planned by PARD with assistance from AWU is relocation of the maintenance facility that is currently located next to the Caretakers House. In exchange for use of the proposed staging area in the portion of Zilker Park west of Mo-Pac, AWU will assist PARD will development of a new maintenance facility at the staging area site after the relief main project is complete. Details are being worked out between PARD and AWU and are not part of relief main Section 1 design.

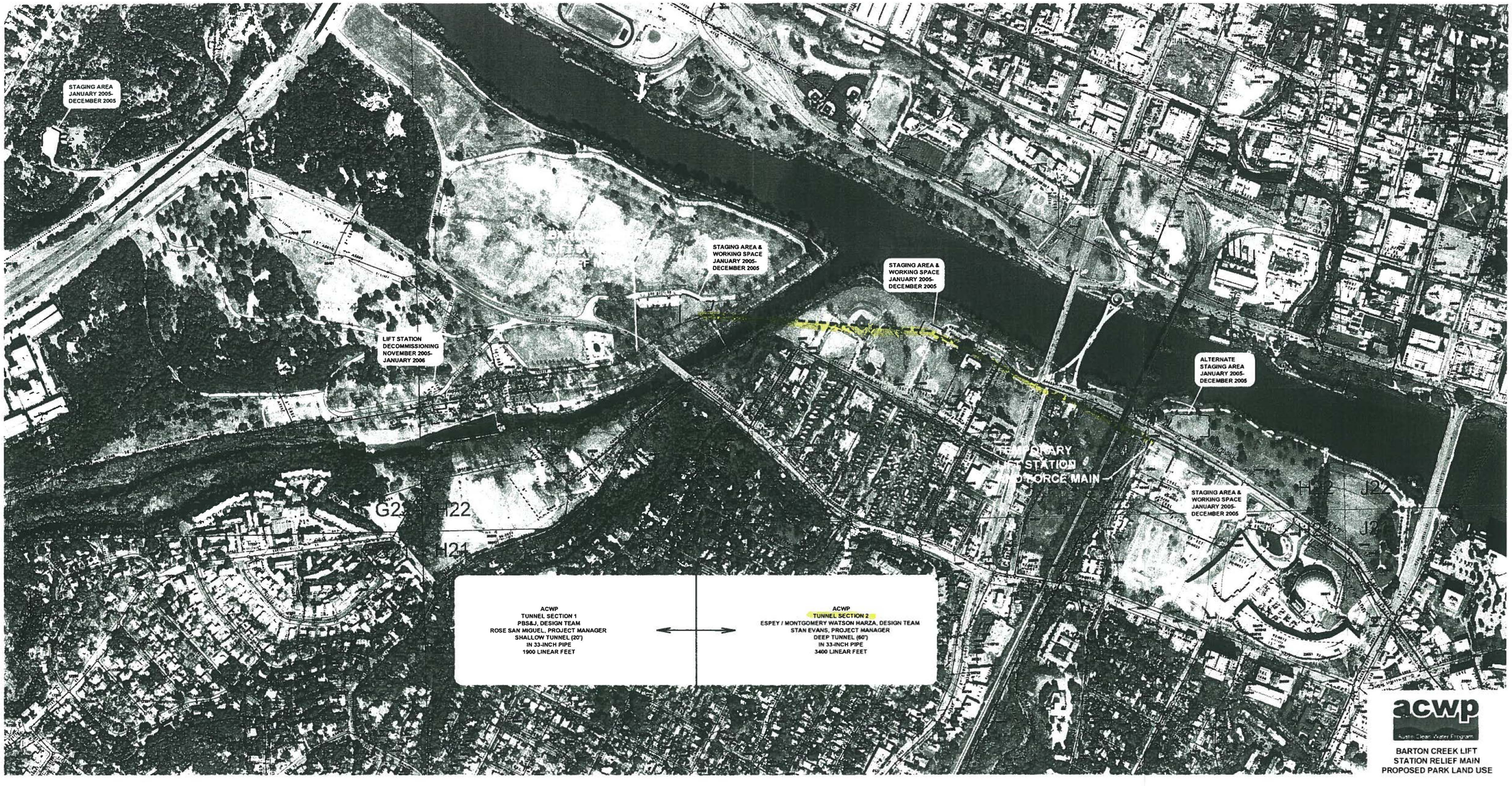
RESTORATION PLAN

Tree replacement is required for the three small Bur Oak trees to be removed at the tunnel shaft workspace. Placement and species of replacement trees will be coordinated with PARD staff.

All areas disturbed by construction activity at the shaft workspace and staging area will be left at original grade (no slopes over 10%) and will be revegetated with bermuda grass to match adjacent areas. Topsoil will be prepared for seeding. If construction activity is completed before mid-September, hydroseeding or broadcasting will distribute Bermuda seed. After September 15, a mixture of bermuda grass and annual rye will be used appropriate for the fall-winter period. All restoration will be in accordance with the Construction in Parks Specifications.



BARTON CREEK LIFT STATION RELIEF MAIN PROPOSED PARK LAND USE



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PROPOSED PARK LAND USE